

Part VI – Partnerships and Opportunities

Fishing Related Research and Education

Interpretive Facilities

Multicultural Outreach



Fishing Related Research and Education Action Plan

Goal Statement

To develop a program that would educate the public about fishing issues in the Sanctuary and to involve fishermen in research activities to add to the body of research available for fishery-related decision making processes.

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Introduction

Fishing Activities in the MBNMS

The commercial and recreational fishing industry constitutes a key component to the economic, historical, and cultural fabric of the region. Most fishes caught within the MBNMS are landed at one of five main ports: Princeton/Half Moon Bay, Santa Cruz, Moss Landing, Monterey Bay, or Morro Bay. More than 1,200 commercial fishing vessels operate in the region annually, along with substantial recreational fishing. More than 200 species of invertebrates and fishes were caught in the commercial and recreational fisheries in this region from 1981-2000, with more than 70% of the commercial fish landings composed of market squid, Pacific sardine, rockfishes, Dover sole, northern anchovy, Chinook salmon, mackerel, albacore, and sablefish. The five primary gear types used are pots or traps, trawl nets, hook-and-line gear, purse seines, and gill or set nets. In 1997, marine fisheries for the counties of Marin, San Mateo, Santa Cruz, Monterey,

San Luis Obispo, and San Francisco were valued at a total of \$53 million, led by San Francisco County at more than \$19 million and Monterey County at more than \$14 million.

MBNMS Fisheries Related Programs

Current involvement of the MBNMS in issues related to fishing includes conducting fisheries-related research, sponsoring educational events, and occasionally commenting to other agencies on fishery and ecosystem management issues.

Fishery Education

In 1998, the Packard Foundation sponsored the California Sea Grant publication “Fishery Resources of the Monterey Bay National Marine Sanctuary” by Starr, Johnson, Laman, and Cailliet. That original publication provided a summary of existing commercial and recreational fisheries, management strategies, management issues, and status of selected fisheries according to landings at the five major ports within the Sanctuary from 1980-1995.

In 2001, the Sanctuary commissioned an update of the 1998 report by Starr, Cope, and Kerr. This new report goes beyond just providing an update of landings data through the year 2000. The different fisheries are presented using a habitat approach rather than on a species-by-species basis. Technical concepts and information that fishery scientists use to estimate the population sizes of harvested species are summarized for a general audience. A brief description of the types of fisheries operating in the region encompassed by the Sanctuary, and a summary of fishery management operations from 1981-2000 are provided. The report also provides suggestions as to why fishery landings changed over time, including changes in regulations (including gear restrictions and quotas), declines in populations, and El Niño events.

Watershed Protection

The Sanctuary has an active role in the protection of the salmon and steelhead populations of the region through preservation of the watershed habitat and water quality that sustain these species during their migration and spawning activities. This includes watershed management and outreach activities with the agricultural community, cities and counties, education of the public about salmonid life cycles and habitat threats, and citizen monitoring of water quality in streams and rivers.

Collaborative Efforts with the Fishing Community

Beginning in 2001, the MBNMS began working collaboratively with a subcommittee of the Alliance of Communities for Sustainable Fisheries to evaluate the potential benefits and drawbacks of using marine reserves to facilitate ecosystem conservation and sustainable fisheries. This subcommittee, which includes fishermen, scientists, and environmental organizations, is attempting to develop solutions, which can protect Sanctuary resources while sustaining the region’s critical fishing industry. The subcommittee is attempting to provide recommendations on the issue to the California Department of Fish and Game, the Pacific Fisheries Management Council, and the Sanctuary program.

MBNMS Research Program

The primary mission of the MBNMS research program is to provide scientific information for resource protection and management. Several basic approaches to achieve this mission include:

1. Determining information gaps,
2. Developing and participating in collaborations to study issues, and
3. Interpreting research for decision makers.

MBNMS Education Program

The mission of the education program is to promote awareness, understanding, appreciation, and stewardship of the Monterey Bay National Marine Sanctuary through public education and conservation programs.

Strategy FER-1: Fisheries Management Education Program

Strategy Description

There is confusion among the general public regarding the role of the MBNMS in fisheries issues, regulations, and mandates. Different agencies [California Department of Fish and Game (CDFG), NMFS, Pacific Fishery Management Council (PFMC), and National Marine Sanctuary Program (NMSP)] have different responsibilities regarding fishing; sometimes they overlap, while providing different protections. The role of the MBNMS is to promote multiple uses while protecting resources, using an ecosystem approach. This Strategy will help to clarify the role of the MBNMS in fisheries issues by creating outreach materials for the public outlining the roles, responsibilities, regulations, and mandates of the MBNMS and the National Marine Sanctuary Program, and how the Sanctuary's role compares to other fisheries management agencies and non-governmental organizations.

EDUCATION COMPONENTS OF FER-1

Activity 1.1: Provide Information on the MBNMS Website of the Roles and Responsibilities of the MBNMS and National Marine Sanctuary Program in Fisheries Issues

Status: Phase 1

Potential Partners: Fisheries management agencies (e.g., CDFG, NMFS, PFMC)

Activity 1.2: Develop an Awareness Campaign Outlining the Roles and Responsibilities of the MBNMS and National Marine Sanctuary Program in Fisheries Issues

Prior to embarking on this campaign, the target audience(s) needs to be identified (e.g., Sanctuary visitors, non-visitors, local residents, families, or school children). Outreach tools will depend on the audience(s) and breadth of campaign.

Project status: Phase 1

Potential Partners: Fisheries management agencies (e.g., CDFG, NMFS, PFMC)

Strategy FER-2: Stakeholder Communication Enhancement

Strategy Description

Historically, there is a lack of good communication and working relationship between the fishing community and resource (protection) managers. The MBNMS and fishing community would like to improve the communication between these groups in an effort to educate the public about fishing issues, and partner in research activities to better understand fishery resources in the MBNMS.

RESEARCH COMPONENTS OF FER-2

Activity 2.1: Continue to Support the “Alliance of Communities for Sustainable Fisheries” with Staff (i.e., Meeting Coordination), to Provide Fishermen’s Perspective to the SAC

Beginning in 2001, the MBNMS began working collaboratively with a subcommittee of the Alliance of Communities for Sustainable Fisheries (Alliance) to evaluate the potential benefits and drawbacks of using marine reserves to facilitate ecosystem conservation and sustainable fisheries. This subcommittee, which includes fishermen, scientists, and environmental organizations, is attempting to develop solutions, which can protect Sanctuary resources while sustaining the region’s critical fishing industry. The subcommittee is attempting to provide recommendations on the issue to the California Department of Fish and Game, the Pacific Fisheries Management Council, and the Sanctuary program.

Along with this Activity, an effort should be made to include recreational fishermen (or continue developing ways for them to be included) in the Alliance. There is also a desire of the fishing community to widen and balance membership of the Alliance (e.g., include processors).

Status: Phase 1

Potential Partners: Fishing organizations (e.g., Alliance)

Activity 2.2: Develop a Communication Plan Between Parties Interested in Education and Research Issues Related to Fishing in the MBNMS

This activity will include communicating with fishermen, California Department of Fish and Game (CDFG), NMFS, Pacific Fishery Management Council (PFMC), and others on what the MBNMS is doing relative to fishing issues and determining the proper channels for effective communication. This activity will also include desired goals and outcomes.

Status: Phase 1

Potential Partners: Fishing organizations (e.g., Alliance), individual fishermen, scientists, educators, fisheries management agencies (e.g., CDFG, NMFS, PFMC), Pacific Marine Conservation Council (PMCC), NGOs, Monterey History & Art Association/Maritime Museum of Monterey

Activity 2.3: Investigate Partnership with the Pacific Marine Conservation Council's (PMCC) West Coast-Wide Collaborative Research Program (e.g., PMCC Website of Research Needs and Fishermen's Assets)

The PMCC is currently developing the first west coast-wide collaborative research program. Their goal is to be a clearinghouse for interested parties to identify research priorities, find funding, and improve communication and trust between fishermen, scientists, and fishery managers. This Activity will explore the best method for posting the types of research needed in the MBNMS on the PMCC website. Activity 2.4 (see below) will help determine the needs of the local fishing communities and research scientists.

Status: Phase 1

Potential Partners: Fishing organizations (e.g., Alliance), Pacific Marine Conservation Council (PMCC), fisheries management agencies (e.g., CDFG, NMFS, PFMC)

Activity 2.4: Develop a Series of Meetings Outlining Projects with Science Needs Using Fishermen's Skills and Assets

This Activity will provide an opportunity for fishermen to help design fisheries research projects, and should be targeted when there are clear needs and funding to achieve the goal(s). To achieve this Activity, the MBNMS will investigate existing cooperative research programs and inform the regional community about existing programs (See Activity 2.3).

Status: Phase 1

Potential Partners: Fishing organizations (e.g., Alliance), individual fishermen, fisheries management agencies (e.g., CDFG, NMFS, PFMC), Pacific States Marine Fisheries Commission (PSMFC; has funding for experimental work on groundfish research and other topics)

Activity 2.5: Include Special Session at Annual Sanctuary Integrated Monitoring Network (SIMoN) Symposium (with publication to share) for Collaborative Research Needs (See Strategy FER- 5)

Status: Phase 1

Potential Partners: Fishing organizations (e.g., Alliance), scientists, academic institutions, fisheries management agencies (e.g., CDFG, NMFS, PFMC), legislative staff, policy makers, NGOs

EDUCATION COMPONENTS OF FER-2

Activity 2.6: Develop an Outreach Program that Promotes the Dialogue and Understanding of the Multiple Perspectives of Fisheries and Values Involved

Status: Phase 1

Potential Partners: Fishing organizations (e.g., Alliance), fisheries management agencies (e.g., CDFG, NMFS, PFMC)

Activity 2.7: As Part of Activity 2.6, Facilitate Public Forums for the General Public and Interested Parties to Understand Local Fisheries

This Activity will include fishermen, scientists, and managers as speakers at public forums to educate the general public and each other of the historical and current status, health, and practices of fisheries within the MBNMS. The development of this activity should link to Strategy FER-3.

Status: Phase 1

Potential Partners: Fisheries management agencies (e.g., CDFG, NMFS, PFMC), Save Our Shores, Monterey History & Art Association/Maritime Museum of Monterey, NGOs

Activity 2.8: As Part of Activity 2.6, Provide Explanation on the MBNMS Website of How Fishermen Can Get Involved in Existing Fishing Topics, Programs, and Other Processes within the MBNMS (e.g., Alliance Activities, MPA Process, Contact Info for Local Fishing Representatives, Sustainable Fisheries Festival)

Status: Phase 1

Potential Partners: Fishing organizations (e.g., Alliance)

Strategy FER-3: Sustainable Fisheries Definition and Promotion

Strategy Description

Fisheries resource management agencies make management decisions with the best available data, which is often limited. Fisheries around the world are often managed with less information. The fishing community within the MBNMS would like to know what information is needed to effectively and sustainably manage fisheries, what information is actually available, what data are used and how data-limited status translates into fishery regulations, and what types of data are lacking. In addition, they would like to know the causes of the discrepancy. The fishing community believes that educating the public, funding agencies, and user groups may help fill-in the gap between the creation of regulations and the paucity of data. Fishermen would like to participate in programs to collect data for fisheries management (e.g., observer and monitoring data).

The general public and fishing community would like more information to be disseminated on sustainable fisheries and practices. Information dissemination should include defining and identifying sustainable fisheries, identifying sustainable fishing techniques, and identifying the pros and cons of aquaculture. Audiences should include the general public, consumers, markets, suppliers, and fishermen. In addition, the facilitation of research on sustainable fisheries, and minimizing fishing impacts should be investigated.

RESEARCH COMPONENTS OF FER-3

Activity 3.1: Facilitate the Exchange of Information from Researchers and Fishermen to Programs Below (Education Component Activities). Develop a Web Page to Indicate Links to Different Programs and Other Sources of Information

Status: Phase 1

Potential Partners: Ocean Conservancy, Institute for Fisheries Resources, World Wildlife Fund (WWF's Community Based Certification Program), Marine Stewardship Council, Monterey Bay Aquarium, Seafood Choice Alliance

Activity 3.2: Promote Research on this Topic by Bringing Together Scientists, Fishing Community, Managers, and NGOs to Develop Collaborative Research Projects (Including Facilitating New Research on How to Define and Assess Sustainability)

Status: Phase 1

Potential Partners: Fishing organizations (e.g., Alliance), fisheries management agencies (e.g., CDFG, NMFS, PPMC), academic institutions

Activity 3.3: Promote Social Science Research on Fishing Industry Perceptions of Sustainability (Fishermen /Perception About Their Future), Then Disseminate the Findings

Status: Phase 1

Potential Partners: Academic institutions, NGOs, and consultants

EDUCATION COMPONENTS OF FER-3

Activity 3.4: Explore and Implement Mechanisms for Reaching Different Audiences on Existing or Potential Programs that Identify, Promote, and Certify Healthy Fisheries on Healthy Choices (e.g., Symposia; Workshops; Fishing Day For Families)

Status: Phase 1

Potential Partners: The Ocean Conservancy, Institute for Fisheries Resources, World Wildlife Fund (WWF's Community Based Certification Program), Marine Stewardship Council, Monterey Bay Aquarium, Seafood Choice Alliance

Activity 3.5: Explain to the Public how to Assess Sustainability

After determining the target audience(s), this outreach activity should include several topics:

- A. How stock size is estimated and determined sustainable,
- B. The costs and economics of fishing and not fishing sustainably, and
- C. Habitat sustainability.

Fact sheets are suggested as an outreach tool.

Status: Phase 1

Potential Partners: Fisheries management agencies (e.g., CDFG, NMFS, PFMC), World Wildlife Fund

Activity 3.6: Facilitate and Participate in a Sustainable Fishing Festival (e.g., Squid, Albacore)

Status: Phase 1

Potential Partners: Monterey History & Art Association/Maritime Museum of Monterey, fishing organizations (e.g., Alliance), World Wildlife Fund, individual fishermen, Monterey Bay Aquarium, fisheries management agencies (e.g., CDFG, NMFS, PFMC), local chefs, local buyers

Strategy FER-4: Fishermen Involvement in Education Programs

Strategy Description

The fishing community possesses a wealth of historical fishery and at-sea knowledge that should be shared to create educational programs and products to better characterize the fishery resources, and historical and current user groups. Developing education programs and products on fishing issues should also involve other interested parties [e.g., non-governmental organizations (NGOs), scientists], to achieve the educational goals and strategies outlined in this Action Plan. The MBNMS will provide the opportunity for the fishing community (and other interested parties) to review, comment, and add sensibilities (if necessary) to documents used for educating the public about fisheries. The MBNMS working groups (e.g., RAP, SEP, CWG) will be used as a sounding board for this Strategy. The Science Writing Program and Science Illustration Program at UCSC are *Potential Partners* for all education outreach components.

EDUCATION COMPONENTS OF FER-4

Activity 4.1: Annually Evaluate Existing Outreach Efforts at Sanctuary Education Panel (SEP) Meeting(s); Include Input from Fishermen and Other Interested Parties

The SEP currently meets bimonthly (every other month), reviewing program proposals, advising on educational priorities, and assisting in implementation of programs to increase understanding and stewardship of the MBNMS. To achieve the goal of this Strategy, one SEP meeting per year should be dedicated to the evaluation of the progress of existing outreach efforts that address Fishing Issues. Input from fishermen and other interested parties should be solicited and considered.

Status: Phase 1

Potential Partners: Fishing organizations (e.g., Alliance), individual fishermen, NGOs, SEP members/agencies

Activity 4.2: Develop and Implement Interpretive Signage of Local Fishing Activities at Harbors

The MBNMS is currently planning interpretive signage at MBNMS harbors to describe maritime history and/or site-specific fishing activities (e.g., target species, vessel types, gear types). This activity should build upon the existing MBNMS effort.

Status: Phase 1

Potential Partners: Fishing organizations (e.g., Alliance), individual fishermen, NGOs

Activity 4.3: Create Exhibits at MBNMS Visitor Center

The MBNMS is currently involved in developing a Visitor Center (location to be determined), and creating smaller interpretative exhibits at two existing California State Park locations (Pigeon Point Light Station and San Simeon). The Visitor Center and/or other exhibit space should include an exhibit highlighting fishing activities in the MBNMS. The fishing community should be involved in the planning and development of the exhibit(s).

Status: Phase 1

Potential Partners: Fishing organizations (e.g., Alliance), individual fishermen, California State Parks (San Simeon District, Bay Area District)

Activity 4.4: Develop and Implement Education Program for K-12, “Mariners in the Classroom”

Educating the public often starts with children, who then teach their parents. In Maryland, NMFS and the Maryland Watermen’s Association have partnered to create an educational program for school children, centered on an existing maritime curriculum. “Mariners in the Classroom,” is an education program for grades K-12, featuring fishermen in the classroom. Fishermen, fisheries scientists, or academics visit classrooms and present topics such as fishing techniques, natural history, biology, fisheries science, social science, and economics. Fishermen are compensated for their travel and time spent in the classroom. In addition, these visits often occur off-season. The MBNMS is exploring the implementation of a similar local program.

Status: Phase 2

Potential Partners: Fishing organizations (e.g., Alliance), individual fishermen

Strategy FER-5: Fisheries Related Data Collection and Distribution

Strategy Description

The general public and fishing community would like more information about the health and trends of fishery stocks in the MBNMS. Information collection and dissemination should address biodiversity, stock abundance, landings, climatic and oceanographic cycles, and anthropogenic inputs.

Collaborative research between fishermen, researchers, and other stakeholders is currently taking place on the east and west coasts of the United States. This type of collaborative effort is for those who wish to work together and better understand the fisheries and marine ecosystems. Such a collaborative effort provides an opportunity for involved parties to add to the body of research available for fishery-related decision-making processes.

RESEARCH COMPONENTS OF FER-5

Activity 5.1: The MBNMS Will Facilitate a Recurring Workshop Series with Interested Parties to Determine Existing Management Capabilities/Needs, Efforts, Gaps, Overlap, and Develop a Coordinated Plan for Collection of Fisheries Relevant Data (Includes Interests Beyond Management or Improved Management)

Status: Phase 1

Potential Partners: Fisheries management agencies (e.g., CDFG, NMFS, PFMC), fishing organizations (e.g., Alliance), academic Institutions

Activity 5.2: The MBNMS Will Facilitate the Development of Mechanisms to Implement the Results from the Above Workshop (Perhaps through Subgroups of the Workshop)

Status: Phase 1

Potential Partners: Fisheries management agencies (e.g., CDFG, NMFS, PFMC), fishing organizations (e.g., Alliance), academic institutions

Activity 5.3: Investigate the Feasibility of Developing and Implementing a Logbook System for Recreational Fishermen

Currently recreational fishermen are not required to submit catch information. Collecting recreational catch information, however, could increase our understanding of ecosystem health. This Activity would be a volunteer program and include training. Recreational catch data could be uploaded by fishermen at a kiosk and/or entered on a website.

Status: Phase 1

Potential Partners: fisheries management agencies (e.g., CDFG, NMFS, PFMC), recreational fishing organizations (e.g., Coastside Fishing Club, Cambria Fishing Club), individual recreational fishermen

Activity 5.4: Investigate the Feasibility of Developing and Implementing a Volunteer Monitoring Program on Location-Specific Catch per Unit Effort, “Staffed” by Recreational Fishermen

Status: Phase 1

Potential Partners: Fisheries management agencies (e.g., CDFG, NMFS, PFMC), recreational fishing organizations (e.g., Coastside Fishing Club, Cambria Fishing Club), individual recreational fishermen, party boats

Activity 5.5: When Undertaking Cooperative Research, the MBNMS Will Solicit Input from Fishermen in the Development, Synthesis, Collection, and Analyses of Data that are Collected

Upon implementation of this Strategy, the MBNMS will recommend that data are used in the proper context and data are used with understanding of data limitations.

Status: Phase 1

Potential Partners: Fishing organizations (e.g., Alliance), fisheries management agencies (e.g., CDFG, NMFS, PFMC), fishery scientists

Activity 5.6: The MBNMS Will Include Fisheries Relevant Data in the Sanctuary Integrated Monitoring Network (SIMoN) Metadata Files And Website

Status: Phase 1

Potential Partners: Academic institutions, fishing organizations (e.g., Alliance), individual fishermen, fisheries management agencies (e.g., CDFG, NMFS, PFMC)

EDUCATION COMPONENTS OF FER-5

Activity 5.7: Identify Target Audience(s) in Needs Assessment and Develop Strategy to Disseminate Research Component Activities

Status: Phase 1

Potential Partners: To be determined

Strategy FER-6: Socioeconomic, Cultural, and Historical Data Collection and Distribution

Strategy Description

The commercial and recreational fishing industry constitutes a key component to the economic, historical, and cultural fabric of the region. This strategy recognizes the need to better understand fisheries as they relate to prehistory, maritime history, and present day socioeconomics, and to better educate the public about these aspects of the fishing community. The Fishing Issues working group suggests that the Administration working group develop an internship program to address components of this strategy (e.g., teach people how to do oral histories). *Potential Partners* include the Monterey History & Art Association/Maritime Museum of Monterey, and Colleges/Universities with maritime concentrations.

RESEARCH COMPONENTS OF FER-6

Activity 6.1: Work with Monterey History & Art Association/Maritime Museum of Monterey to Gather Oral Histories and Photographs of Fisheries and their Cultural Evolution (Past and Present) in the Monterey Bay National Marine Sanctuary. Disseminate Information Via Activity 6.4

Status: Phase 2

Potential Partners: Monterey History & Art Association/Maritime Museum of Monterey

Activity 6.2: Propose to University Library Sciences Programs, to Organize the California Department of Fish and Game (CDFG) Library Currently at Moss Landing Marine Laboratories (MLML) to Create a Searchable Database (i.e., Enter Document Information into Online Catalog)

Moss Landing Marine Laboratories (MLML) recently acquired a portion of the largest collection of historical CDFG literature, including internal CDFG reports (e.g., monthly reports), journals, rare or otherwise valuable books, and gray literature (e.g., environmental reports). The CDFG collection needs to be entered into the online MLML/MBARI (Monterey Bay Aquarium Research Institute) research library to create a searchable database for historical fisheries research.

Status: Phase 3

Potential Partners: CDFG, Moss Landing Marine Laboratories, Monterey Bay Aquarium Research Institute, university library sciences programs, David and Lucile Packard Foundation

EDUCATION COMPONENTS OF FER-6

Activity 6.3: Support and Develop Closer Involvement with the J.B. Phillips Historic Fisheries Symposium

The J.B. Phillips Historic Fisheries symposium, hosted by the Monterey History & Art Association/Maritime Museum of Monterey, is a way of perpetuating and recording the history of past and current fisheries. To do this, the Museum brings together scientists, fishermen, historians, sociologists and fish market owners in a 5-hour symposium for the public. Panelists present different facets of the scientific, commercial, and sociological impacts of one fishing industry. In the process, the audience has an opportunity to engage in interesting and enjoyable

discussion with the speakers about the fishing industry and its impact on our oceans and communities. Each symposium culminates in a published fisheries report that covers the current science, culture and history. In years past, symposia have focused on the squid, abalone, sardine fisheries and this year, the Scientists of Cannery Row.

The goals and objectives of the symposium and report are: (1) to introduce to the general public the history of the fisheries and fisheries science of the Monterey Bay; (2) to raise public awareness about the historical, economical and political importance of the fisheries in Monterey Bay; and (3) to give the public an opportunity to discuss these issues with scientists, policy makers, historians, and fishermen in a non-academic framework.

Supporting and closely participating in the annual symposium may create a larger awareness of the local, historical fisheries.

Status: Phase 2

Potential Partners: Monterey History & Art Association/Maritime Museum of Monterey

Activity 6.4: Work with Monterey History & Art Association/Maritime Museum of Monterey to Develop, Circulate, and/or Display Education Materials (e.g. Book, Pamphlet, Video, Poster) of Fisheries and their Cultural Evolution (Past And Present) in The Monterey Bay National Marine Sanctuary. Collect Information Via Activity 6.1

Status: Phase 2

Potential Partners: Monterey History & Art Association/Maritime Museum of Monterey

Activity 6.5: Educate the Public on the Conservation Efforts of Fishermen in terms of Self-Regulation, Fishermen-Developed Regulations, and Oil Spill Response

The fishing community has an interest in not only making a living off the sea, but also conserving it for the long-term. This trait often goes unnoticed. The fishing community would like to be acknowledged for their conservation contributions, and educate the public on several instances of their efforts. These efforts include self-regulation, the creation of regulations suggested by fishermen, and participation and training in oil spill response. To develop this Activity, the target audience(s) and main messages will be determined. The use of multimedia in the development and dissemination of the messages developed will be explored.

Status: Phase 2

Potential Partners: Fishing organizations (e.g., Alliance)

Strategy FER-7: Public Outreach on Links Between Healthy Ecosystems and Fish Stocks (e.g. Impacts of Pollution, Healthy Watersheds)

Strategy Description

The decreasing trends in fish stocks are not always solely attributed to fish harvesting. There are many aspects that contribute to ecosystem health and stock size. This strategy recognizes the need to identify impacts to ecosystems including fish harvesting, pollution, and watershed health.

RESEARCH COMPONENTS OF FER-7

Activity 7.1: Sanctuary Currents Symposium to Focus on Coastal Water Quality Issues, Including How it Influences Fisheries

Status: Phase 2

Potential Partners: Academic institutions, NGOs, Sea Grant, fishing organizations (e.g., Alliance)

Activity 7.2: Facilitate an Assessment of What Is Known about the Links Between Ecosystems and Fisheries (Contract for a Report/Literature Review)

This Activity will focus on Sanctuary resources. Threat to resources other than fishing will be identified. The following topics will be investigated: 1) Salinas River and Salmon, 2) regime shifts, 3) positive and negative sides of agriculture, and 4) the influence of water quality.

Status: Phase 2

Potential Partners: Academic Institutions, NGOs, Sea Grant, Fishing organizations (e.g., Alliance)

EDUCATION COMPONENTS OF FER-7

Activity 7.3: Add Ecosystem Components/Information to Interpretive Signage on Wharfs (Include Fisheries Related to Ecosystem Info)

Status: Phase 2

Potential Partners: Academic Institutions, Fishing organizations (e.g., Alliance), Individual fishermen, NGOs, Sea Grant

Activity 7.4: Using Information from Activity 7.1, Develop Strategies to Disseminate to Target Audiences (i.e., Schools, Adults, Users, Appropriate Connections with the Water Quality Protection Program)

Status: Phase 2

Potential Partners: Academic institutions, NGOs, Sea Grant, fishing organizations (e.g., Alliance), Monterey Bay Aquarium, Fisheries management agencies (e.g., CDFG, NMFS, PFMC)

Citations

1 Starr, R.M., K.A. Johnson, N. Laman, and G.M. Cailliet. 1998. *Fishery resources of the Monterey Bay National Marine Sanctuary*. California Sea Grant College System Publication No. T-042, 102 p.

2 Starr, R.M., J.M. Cope, and L.A. Kerr. 2002. *Trends in Fisheries and Fishery Resources Associated with the Monterey Bay National Marine Sanctuary from 1981-2000*. California Sea Grant College System Publication No. T-046, 156 p.

Interpretive Facilities Action Plan

Goal Statement

The goal of the Interpretive Facilities Action Plan is to create a comprehensive outline for the development of sanctuary centers and signage while exploring new opportunities for reaching constituents.

This Action Plan was developed by an internal MBNMS staff team.

MBNMS Staff Contact

Dawn Hayes Education and Outreach Coordinator

Introduction

Comments by the public and the Sanctuary Advisory Council (SAC) suggested an important issue facing the sanctuary was a lack of awareness of the resource issues and threats to our local oceans. We received numerous recommendations that the sanctuary increase interpretation of ocean resources through interpretive centers and other means. Facilities for education, research, and outreach provide a critical vehicle for interaction and developing a sense of stewardship with the constituent base of the MBNMS.

MBNMS Education Program

The mission of the education program is to promote awareness, understanding, appreciation, and stewardship of the Monterey Bay National Marine Sanctuary through public education and conservation programs. Several communication and collaboration goals include:

- ☐ Collaborate with or provide support to organizations that promote sanctuary educational goals.
- ☐ Meet regularly to seek advice and support from the Sanctuary Education Panel (SEP) in planning and implementing sanctuary education programs.
- ☐ Network with staff of local, state and national marine education programs; participate in regional or national meetings and conferences of marine educators.

Current interpretive facilities and signage efforts in the MBNMS as of 2002

There are no visitor centers within MBNMS boundaries that specifically interpret the MBNMS, the NMSP or the natural and cultural resources found therein. However, limited information and small exhibits can be found in several State Parks and private visitor centers including the Monterey Bay Aquarium. There is a three-sided interpretive kiosk (with audio) installed on the Municipal Wharf in Santa Cruz interpreting the sanctuary, kelp forests and wildlife.

The MBNMS currently has 51 general interpretive signs along the sanctuary shoreline, located at strategic State Beaches, Parks and a variety of municipalities, from Pillar Point Harbor in Half Moon Bay, San Mateo County south to Cambria, San Luis Obispo County.

More recently, the MBNMS has focused on resource issue signage. Due to increased visitation and harvesting, there are a series of signs specific to tide pool resources and etiquette in Pacific

Grove, the central region of the sanctuary, designed to reduce the threat of human impacts at locations where there is high public visitation.

The MBNMS partnered with Friends of the Elephant Seal in the southern region to develop and install extensive interpretive signage at a highly visited turnout.

In conjunction with the resource protection plans, related to water quality, harbor issue signs at Monterey and Moss Landing harbor boat launches, discussing discharge, pollution and prevention have been installed along with oily bilge and sewage pump station signs.

Regulatory signs for motorized personal watercraft are posted at all four harbors.

As of June 2003, two Internet Weather Kiosk, interactive turnkey units were installed at the Monterey and Pillar Point Harbors, at the harbormasters' offices. These have through glass touch screens and are connected to the Internet to access up to date weather, sea state, surface temperature, and a variety of other links. These will be piloted and updated with input from harbor users over the summer and fall of 2003.

Strategy IF-1: Visitor Center

Strategy Description

The original 1992 management plan for the MBNMS included an expectation that visitor center(s) would be developed along the Sanctuary's shoreline. The need for a sanctuary Visitor Center was reiterated by the public and the SAC during the scoping process for the management plan review. Scoping comments indicated that an interpretive center is needed to help raise public awareness of ocean issues, promote environmental stewardship, foster community support, and give the Sanctuary a more tangible presence. Visitor Centers can provide opportunities for more in-depth interpretation and exploration of sanctuary resources than coastal signage or publications. The 2001 Market Analysis and Interpretive Strategy for the NOAA National Marine Sanctuary System includes visitor centers as an interpretive medium that can effectively deliver clear sanctuary messages to a diverse audience, and the 2000 National Marine Sanctuary System Education Plan includes a goal of developing a network of interpretive facilities to heighten visitors' experience and convey sanctuary messages.

The MBNMS has an extensive coastline and could benefit from having a string of marine-themed, interpretive Visitor Centers to reach visitors equally in the northern, central, and southern portions of the coastline. Realistically, it will not be financially feasible to outfit and operate more than one large Visitor Center. The long-term vision, supported by numerous public scoping comments, is therefore to open one large Visitor Center and three smaller, regional interpretive facilities. Two locations have already been identified as potential sites for small "storefront" exhibit centers, located at Pigeon Point Lighthouse in San Mateo County and at William Randolph Hearst Memorial Park/State Beach in San Simeon.

The MBNMS envisions an interactive interpretive center highlighting the Sanctuary's extraordinary natural and cultural resources, the National Marine Sanctuary System and other NOAA programs, and the vital role citizens play as ocean stewards. Anticipated audiences include local residents, tourists, and school groups on field trips. Exhibits will be interactive and multimedia, and will include the possibility of real-time ocean images, virtual sanctuary experiences, aquaria and a wet touch tank. Many exhibits will be bilingual in English and Spanish. A secondary function of the facility is to be an orientation or "Welcome" center to provide visitor information on the variety of nearby opportunities to experience the Monterey Bay National Marine Sanctuary or learn about the ocean.

MBNMS envisions a facility in the range of 5,000 to 12,000 square feet, depending on the site selected. The Visitor Center should blend well with the surrounding environment and utilize the best "green" technologies. Ideally, the Visitor Center will include exhibit and welcome space, a multimedia teaching lab/classroom, a public meeting room, a small bookstore, and ample support space including staff offices, storage areas, and restrooms. All public areas of the facility must meet ADA standards.

Activity 1.1: Identify a Visitor Center Location

As directed by its 1992 Management Plan, the MBNMS is searching for locations along the coastline for a sanctuary Visitor Center. A location with a partner to assist with facility development is required, although the definition of a partner is flexible and may include donation

of land or space, financial assistance with building construction, cooperative management or operation, or partnering on interpretive programming.

MBNMS staff have identified environmental requirements for the Visitor Center site such as a waterfront area location with a view of the marine sanctuary, within walking distance to the beach. The location must have high visitation and visibility, as the sanctuary center will rely on visitors already in the area.

Through a feasibility study, consultants for the MBNMS have identified four potential Visitor Center sites around Monterey Bay and the team is now conducting environmental and economic feasibility comparisons between the sites. The four sites under consideration (from north to south) are the Fun Spot in Santa Cruz, the Santa Cruz Beach Boardwalk, Seacliff State Beach in Aptos, and the Historic Train Depot in Monterey.

The feasibility study will:

- ☐ Provide visitation estimates for each site and information on visitor interests and demographics.
- ☐ Evaluate environmental and geologic constraints at the sites, and specify permit requirements for each site.
- ☐ Provide capital and operating cost estimates for each site, which will advise on extent of fundraising needs.
- ☐ Provide sample architectural designs or options for each site.

The results of the feasibility study will provide objective information on the opportunities and constraints at each site, and will be used by sanctuary management to select the best location for the Sanctuary's Visitor Center.

Timeline: To be completed by August 2003.

Potential Partners: Will depend on the location.

Activity 1.2: Develop a Visitor Center Interpretation and Exhibit Plan

For the chosen Visitor Center site, the MBNMS will develop a comprehensive interpretation plan elaborating on the center's intended mission, goals, audiences, interpretive themes and messages. The focus of the center will be interpretation of the MBNMS, the NMSP, and all of the West Coast Sanctuaries. The center will be designed to be a stand-alone educational experience, but will also include information referring visitors to complementary sanctuary-related experiences, facilities, and marine education opportunities. As part of this activity, the MBNMS will:

- A. Explore how other NOAA education facilities have provided for community involvement, and will consider establishing an advisory group for community participation in the Visitor Center planning process. Activities 1.2 and 1.3 should occur concurrently so they are well coordinated, synergistic, and ensure the best possible match between the facilities and the interpretation.
- B. Develop the interpretive themes and messages, to include messages representative of the MBNMS and the National Marine Sanctuary Program.

- C. Identify potential visitor and school/youth group programming for the center.
- D. Work with a contracted exhibit designer to develop specific exhibits for communicating the themes and messages, to include hands-on activities and multimedia displays.
- E. Identify the regional interpretive opportunities and experiences to which visitors can be referred for further learning.

Timeline: Initiate Fall 2003.

Potential Partners: Will depend on the selected site.

Activity 1.3: Develop a Visitor Center Facilities and Operations Plan

For the chosen Visitor Center site, the MBNMS will develop a comprehensive facilities and operations plan elaborating on the center's environmental, architectural, and financial requirements. The Visitor Center should blend well with the surrounding environment and utilize the best "green" technologies. *Activities 1.2 and 1.3* should occur concurrently so that they are well coordinated, synergistic, and ensure the best possible match between the facilities and the interpretation.

- A. Review the preliminary geologic assessment provided by the initial feasibility study and conduct further site-specific geotechnical studies, as necessary.
- B. Review sample architectural plans and work with a contracted architect to finalize external (if appropriate) and internal building designs and blueprints.
- C. Develop a staffing and maintenance plan and schedule.
- D. Refine rough estimates of capital cost and operating cost provided in the initial feasibility study.
- E. Work with NMSP headquarters staff to initiate the necessary procedures and process for building construction if needed.
- F. Work with contracted experts to assess the need for and complete the appropriate environmental analyses (e.g. NEPA, CEQA requirements).
- G. Apply for and obtain the necessary permits.

Timeline: Initiate Fall 2003.

Potential Partners: Dependant on selected site.

Activity 1.4: Develop and Implement Fundraising Strategy

While some federal construction funds may become available from National Marine Sanctuary Program appropriations, it is anticipated that federal funds will not cover all of the Visitor Center's capital costs. Significant fundraising from the public and private sectors will be needed to raise construction funds. A fundraising plan will be developed and implemented most likely with the assistance of the Monterey Bay Sanctuary Foundation and potentially the National Marine Sanctuary Foundation.

- A. Identify local community members who can provide fundraising guidance, and consider establishing a capital campaign committee to assist with efforts.
- B. Identify potential funding sources in both the private and public sectors.
- C. Identify a range of sponsorship opportunities that potential funders can support.

- D. Utilize the interpretation plan and the facilities plan to demonstrate and promote the feasibility of the chosen site as a successful and effective sanctuary Visitor Center.
- E. Implement fundraising campaign.

Timeline: Full implementation needs to wait for *Activities 1.2 and 1.3*

Potential Partners: Dependant on selected site.

Activity 1.5: Construct and Outfit Visitor Center

With advice from facilities experts at NMSP headquarters, follow all NOAA construction guidelines and procedures. All interpretive installations will be done in conjunction with NMSP Contractors, MBNMS staff, NMSP Staff and partners.

Timeline: Funding dependent

Potential Partners: NMSP, NMSP contractors, site partners

Activity 1.6: Develop Smaller Regional Interpretive Facilities

Opportunities for in-depth sanctuary interpretation to geographically diverse audiences will be expanded by the development of several small regional interpretive facilities, or “storefront” visitor centers. Two locations have already been tentatively identified, at Pigeon Point Lighthouse, Bay Area District, California State Parks in San Mateo County and in the San Simeon District, California State Parks in San Luis Obispo County. The sanctuary envisions a third small facility in either Santa Cruz or Monterey, dependant on the final location of the larger sanctuary Visitor Center.

These smaller interpretive venues will contain some aspects and messages contained in the larger visitor center, but will focus primarily on the unique resources (natural and cultural) of the regions in which they reside.

Timeline: Initiate in San Simeon and Pigeon Point, Fall 2003.

Potential Partners: California State Parks, San Mateo Coast Natural History Association, Friends of Hearst Castle, Monterey Bay Sanctuary Foundation, additional partners will be identified as additional units are developed

Strategy IF-2: Sanctuary-Wide Interpretive Signage

Strategy Description

With over 275 miles of coastline, and almost as many access points, the MBNMS has a wealth of opportunities to reach visitors visiting its shores. A comprehensive interpretive signage program, implemented with partners having land-based jurisdiction over the coastline, will provide one piece of the overall Interpretive Facilities Plan. These potential partners include California State Parks, US Forest Service, local counties, cities, and other land trust entities.

In its first ten years, MBNMS focused on general signage with the basic MBNMS message. Now the sanctuary needs to focus on individual, custom messages to maximize resource protection and personal enjoyment of the sanctuary highlighting the features of each location. The messages on these signs will increase general awareness of the unique nature of the Sanctuary and its resources, interpret the ecosystems, human links, management initiatives of the Sanctuary, and encourage stewardship of the Sanctuary. Specific messages for signage may be identified through other working groups, e.g. Wildlife Disturbance, Motorized Personal Water Craft, Tide pools and other resource protection related groups. In addition to interpretive signs, this strategy includes interpretive kiosks and weather station kiosks.

The MBNMS is also fortunate to be surrounded by jurisdictions and agencies interested in enhancing public education about the sanctuary and the inspiring natural and cultural resources it protects. Since 1992, several regional plans have been developed for scenic coastal trails envisioned not only as recreation and transportation corridors but also as interpretive pathways highlighting the MBNMS. These trails have been planned to feature interpretive signs and displays fostering appreciation and stewardship of the marine sanctuary and its shoreline communities. The regional government entities or community groups leading the planning efforts approached the sanctuary to solicit staff involvement early in the trail planning processes.

Activity 2.1: Develop and Maintain a Signage Inventory

A comprehensive inventory of the existing network of signs interpreting various aspects of the marine environment along the coastline of the MBNMS is needed to determine the baseline for additional signage. This inventory will include MBNMS signage as well as signage efforts of other agencies and organizations based along the central California coast.

- A. Identify existing MBNMS signage, locations, type/materials used, and messages
- B. Identify existing marine interpretive signage established by other agencies/organizations, locations, type/materials, messages and responsible entities (potential partners)
- C. Create a matrix/map of current messages, locations, and partners

Timeline: To be completed by Sep 30, 2003

Potential Partners: California State Parks, US Forest Service, BLM's California Coastal National Monument, Gulf of the Farallones NMS (in San Mateo County), San Luis Obispo, Monterey, Santa Cruz, and San Mateo Counties, numerous cities, and other land trust entities

Activity 2.2: Develop an Implementation Plan for Signage

It is likely there will be some gaps in the placement of signs and/or interpretive messages along the coastline. Once new interpretive opportunities are identified, an implementation plan must be designed to determine the “when, where, who, how, and funding” for new signs. Since funding may be the main limiting factor, a tiered schedule for short, medium, and long-term projects will be incorporated, along with a periodic reassessment to determine if specific needs still exist. This must also include an assessment of the applicable environmental regulations, such as NEPA, CEQA, and other federal/state/local requirements. Finally, it must include a plan to maintain and upgrade signage to ensure that damage and weathering are addressed in a timely manner and messages do not become obsolete.

- A. Work with partners to identify additional signage needs, including messages and locations
- B. Assess the need for bilingual signage at specific locations based on user/visitor populations
- C. Prioritize the need for signage at each location using a multi-year horizon (short, medium, and long-term projects)
- D. Identify costs and create a project-specific budget based on the multi-year plan
- E. Assess environmental impacts based on the multi-year plan
- F. Develop a schedule for reassessing priorities, maintaining, and upgrading signs
- G. Work with partners on the installation of signs

Timeline: Implementation Plan to be developed by end of year one; implementation will occur as identified in the plan

Potential Partners: California State Parks, US Forest Service, BLM’s California Coastal National Monument, Gulf of the Farallones NMS (in San Mateo County), San Luis Obispo, Monterey, Santa Cruz, and San Mateo Counties, numerous cities, and other land trust entities

Activity 2.3: Support Sanctuary-Related Interpretive Trail Projects

The MBNMS recognizes the valuable contribution to public education and awareness that an integrated system of “sanctuary scenic trails” along the coastline could bring. Since these coastal trails provide additional interpretive opportunities, it is our policy to provide support to other agencies and organizations involved in coastal trail development when there is a formal commitment to sanctuary-related interpretation along the trail. MBNMS support may be provided to these partners through staff time and/or financial contributions for trail planning or implementation, resources allowing. Interpretive trail projects currently underway or on the horizon include:

- *Santa Cruz County Sanctuary Scenic Trail*—Since 1998 MBNMS staff have assisted with planning for this 13-mile urban trail, with heavy involvement in development of interpretive messages and content. MBNMS funded the production of eight interpretive displays, and will continue to provide staff time for thematic guidance and content development as the trail interpretation is fully implemented.
- *Monterey Bay Sanctuary Scenic Trail*—MBNMS staff have participated in trail planning since the project’s inception in 2001, and are currently coordinating development of the

trail's interpretive plan. This long-term effort will ultimately result in a 45-mile continuous coastal trail between Santa Cruz and Monterey.

- *Half Moon Bay Coastal Trail* –MBNMS is currently exploring partnerships to provide interpretive signage along this partially completed 9-mile trail.
- *Moonstone State Beach Trail*—MBNMS and State Parks are currently developing a signage plan for a new one-mile walkway at Moonstone State Beach in Cambria.

Timeline: Ongoing, as projects arise.

Potential Partners: Will vary depending on the trail project.

Strategy IF-3: Virtual Experiences

Strategy Description

In addition to the millions of people who visit the Monterey Bay National Marine Sanctuary each year, many more would like to. The technology to educate and reach these potential visitors exists in the form of “virtual experiences.” These programs and products can be made available via the Internet, at visitor centers located far from the Sanctuary, and as marketable products at museums and aquaria throughout the world. They can be made available in multiple languages and to those with auditory, visual or physical impairments. By combining live and pre-produced materials, a variety of informal learning environments can be created. These “virtual interpretive facilities” invite millions of people who may never come to Monterey to visit the Monterey Bay National Marine Sanctuary.

Three primary mechanisms have been identified to visit the Monterey Bay National Marine Sanctuary from a distance: 1) the MBNMS website, 2) telepresence technology, and 3) videotapes and CD ROM’s containing the best images and footage of MBNMS habitats and wildlife. Each of these methods is discussed in the following activities.

Activity 3.1: Expand Virtual Interpretive Opportunities on MBNMS Website

A variety of options already exist for off-site users to appreciate the Sanctuary. Our award-winning website offers a myriad of learning opportunities and resources. The website can be expanded further to add more virtual experiences including:

- A. Links to the numerous “web cams” already in use throughout the Sanctuary, including weather cams, critter cams, and surf cams.
- B. Links to partner programs and sites, including sensitive species programs and safe wildlife viewing guidelines.
- C. Development a web tour of certain highlighted areas in the MBNMS. Visitors using the web might be able to see and hear about the diversity of habitats and wildlife within Sanctuary waters. The tour may include hard-to-reach areas such as the deep sea and open-ocean. Informational and conservation messages would be included.

Timeline: Adding links in FY04, and continue as needed. Web tour to be completed in FY 05.

Potential Partners: Other federal, state and county government agencies, non-profit organizations, and other appropriate partners.

Activity 3.2: Expand Interpretive Opportunities Using Telepresence Technology

The term “telepresence” refers to the use of interactive technology, including live video cameras, operation of remote camera systems, robots, and underwater vehicles. Currently, images are transmitted using satellite and microwave technology coupled with Internet2 to distant locations. They provide opportunities for verbal, video or robotic interaction between the camera site and the visitor site. Visitors to telepresence sites may be able to ask questions of researchers, operate an underwater camera along a tether, explore a shipwreck, and observe marine organisms in their natural environment.

Telepresence allows “real-time” interaction with our sanctuaries by school groups, researchers, and the general public. The program is the brainchild of Dr. Robert Ballard who wished to expand the successful JASON program. The JASON project has thousands of students tune in to watch researchers and ask them questions via Internet2, a special internet connection dedicated to research and university programs, watch them conduct their research and hear live accounts about their experiences. This new Telepresence idea has been piloted here in the Monterey Bay to the Mystic Aquarium and Institute for Exploration in Mystic Connecticut.

The National Marine Sanctuary Program considers telepresence to be an important outreach component for all National Marine Sanctuaries. MBNMS became a leader in telepresence technology in 2002 when images from a video camera installed in Monterey Bay were observed by visitors to the Immersion Theater in Mystic. The camera, attached to a tether, can be controlled by an operator 3,000 miles away. Now, visitors to the Mystic Aquarium regularly observe bat stars on the Monterey Bay seafloor, watch sea lions on the breakwater, and observe a cormorant nesting site. Plans for the future include adding camera sites at Florida Keys, Channel Islands and Thunder Bay National Marine Sanctuaries, so visitors to a single location have the opportunity to visit several marine sanctuaries. The MBNMS will coordinate with other sanctuaries to provide a comprehensive message of conservation throughout the NMSP program, using educational themes consistent with the NMSP educational goals.

- A. Continue MBNMS’ participation in NOAA’s developing telepresence program.
- B. Explore the expansion of existing partnership with Mystic’s program and the Institute For Exploration by adding a “diver cam” equipped with a speaker so that an underwater diver in Monterey can describe current conditions to visitors at the Mystic Aquarium in Connecticut.
- C. Add telepresence capabilities to additional interpretive facilities, including the MBNMS Visitor Center and storefront exhibits as available.
- D. Participate in research and education programs similar to JASON as they arise.
- E. Install additional topside video cameras at selected sites providing unique viewing opportunities in the Sanctuary. Future potential camera locations include the Monterey Canyon, a mid-ocean site, a kelp forest, an elephant seal pupping beach and a seabird rookery.

Timeline: MBNMS has already become a leader of telepresence technology. Additional components and expansion will occur concurrent with the NMSP telepresence budget and program.

Potential Partners: The NMSP Telepresence Initiative and other national marine sanctuaries, Institute for Exploration, JASON Program, other interested aquaria and interpretive centers.

Activity 3.3: Expand Interpretive Opportunities Using Virtual Education Products

Consumers are interested in purchasing or receiving products to view or enjoy from the comfort of their home or vehicle. MBNMS has produced videos now available to education programs and teachers. Other possible products include:

- A. CR ROM, an interactive CD about Davidson Seamount.
- B. CD Audio tour of MBNMS from southern to northern boundary (and the reverse) along Highway 1. As visitors drive along Highway, they will stop at designated locations and listen to natural history information about the area.
- C. Video of MBNMS ecosystems and habitats (20-30 minutes).

Timeline: Dependent upon funding

Potential Partners: Monterey Bay Sanctuary Foundation, National Marine Sanctuary Foundation, private parties, California State Parks, US Forest Service

Multicultural Outreach Action Plan

Goal Statement

MERITO will increase our diverse community's understanding of the ocean-related threats within the MBNMS, and be an important long-term element in affecting change in individual behavior.

This Action Plan was developed by an internal MBNMS staff team.

MBNMS Staff Contact

Karen Grimmer Education Specialist

Introduction

In 2001, the Monterey Bay National Marine Sanctuary (MBNMS) developed a multicultural education plan named Multicultural Education for Resource Issues Threatening Oceans (MERITO), in response to the changing demographics in Central California. Hispanics represent the fastest growing population in this region; developing relationships with this large citizen group is a priority for the MBNMS. The initial focus of the effort is to identify targeted audiences within our Hispanic community, and work collaboratively to develop effective bilingual outreach and education programs. Although this action plan will focus on outreach programs for Hispanic citizens, future education plans will include efforts to reach additional culturally diverse groups.

Currently, a limited number of bilingual programs and resources are available to Spanish-language citizens within the National Marine Sanctuary Program (NMSP), and its 13 sanctuaries. Based on needs identified through an assessment process, this action plan will seek to develop bilingual outreach programs and materials that will effectively inform Hispanic citizens about threats to marine and coastal environments. In addition, this action plan will strive to effectively engage Hispanic constituents in marine and coastal issues addressed in this management plan through programs and materials geared for diverse audiences.

The MERITO plan was developed in collaboration and partnership with agencies and organizations serving Hispanics, in an effort to provide expanded bilingual outreach and education about marine and coastal environments and their conservation to youth, teachers, adults and families. The three main program goals of MERITO, (Spanish meaning is “merit” or “worth”) are to:

- Collaborate with natural resource management agencies like California Department of Parks & Recreation and National Estuarine Research Reserves to increase visitation by Hispanic youth and families through site-based outreach,
- Collaborate with K-12 schools, adult schools and community groups to build upon and foster new community-based outreach for Hispanic youth, adults and migrant families,
- Collaborate with Minority Serving Institutions to develop and provide teacher trainings and college internships for Hispanic-serving teachers and undergraduate and graduate level students.

Process of Plan Development

From October of 2000 to January 2001, MBNMS staff collected information (using a needs assessment tool) during 30 individual meetings with community leaders representing different community groups, school districts, universities, non-profit organizations, city, state and federal agencies, and the farm industry. Personal interviews resulted in a list of critical needs that must be addressed in order for the MBNMS to provide effective education for the Hispanic community. The needs were evaluated and grouped into ten common themes:

1. Community Event Support - provide hands-on activities and other resources to support various Hispanic community events,
2. Conference Support - attend career fairs, coordinate and host field trip enrichment activities,
3. Field Trip Instruction - provide bilingual education staff to lead field activities,
4. Field Trip Transportation - provide vehicles or funding for vehicles to transport groups to field trip site(s),
5. High School and College Internships - provide paid-internship opportunities for Hispanic high school, undergraduate level and graduate level students,
6. In-kind Support - provide equipment and supplies to support school and college programs,
7. Job Shadowing & Mentorship - provide opportunities for Hispanic high school and undergraduate students to follow marine professionals for a day,
8. Outreach Instruction - provide bilingual education staff for in-school and community-based programs focusing on marine and coastal conservation programs,
9. Outreach Materials - provide bilingual lesson plans, posters, kits and other educational materials for in-class, after-school, and community-based programs, and,
10. Teacher Professional Development - provide marine science enrichment opportunities to pre-service and in-service Hispanic-serving teachers, as well as supplemental lesson plans, teacher kits, and other materials for more effective classroom lessons and field activities.

Audience

Using the general category of “citizens,” a variety of backgrounds, experiences and education exist in this community. In order to involve citizens, local efforts must match citizen needs and interests. This action plan will address local issues such as water quality, urban runoff, agricultural lands runoff, contaminated seafood, littering and recycling. MBNMS will target a number of specific audiences within the Hispanic community with resource issue education, including migrant parents and families, adults, youth at-risk, middle school students, college interns, teachers and community leaders.

Strategy MERITO-1: Regional Planning Approach to Address Multicultural Outreach

Strategy Description

There is a need for a comprehensive regional approach to effectively address multicultural outreach in the Central California region. This approach will help local Hispanic-serving organizations to maximize their available resources through increased communication and coordination with other groups that either provide or utilize bilingual outreach resources.

A MERITO Partnership Committee will be established to provide guidance and assistance in implementing regional programs associated with multicultural outreach. The committee will be responsible for reviewing new and existing ideas and strategies, offering input on visioning for the future, and in some cases, assisting with implementation of the programs. The makeup of the committee will reflect the diversity of Hispanic-serving community groups, schools, academia, government agencies, industry, and other participating sanctuaries in the region. The group will have clear and written guidelines on their role and responsibility, and plan to meet bi-annually in the Monterey Bay region to discuss progress on these matters.

Activity 1.1: Identify Key Partners to Participate in a “MERITO Partnership Committee”

MBNMS will actively recruit partners to serve on the MERITO Committee through the use of a core planning team who will promote and coordinate the first meeting. The core planning team will draft goals and objectives for the initial meeting, in order to ensure a collaborative approach in developing Spanish language outreach programs and materials.

Activity 1.2: Outline the Committee’s Goals and Responsibilities

The goal of the first meeting will be to review, revise and adopt the Committee’s draft goals and responsibilities. The document will define the Committee’s role and responsibilities, as well as list action items and timelines for specific tasks and future meetings.

Activity 1.3: Develop a List Serve for Communication Needs

MBNMS Network Manager, working with NMSP Headquarters, will develop a MERITO Partnership Committee listserv to be used for communication relative to MERITO programs. The list serve can be used for dialogue and to transmit information between meetings.

Timeline: To be initiated in 2003

Potential Partners: See Appendix A: MBNMS Multicultural Education Plan Partnership Organizations

Strategy MERITO-2: Community-Based Bilingual Outreach Program

Strategy Description

This strategy addresses the need for bilingual outreach on marine and coastal management issues to community groups, schools, Chambers of Commerce, and industry. Community involvement and partnerships are fundamental to implementing successful resource management strategies. Full implementation of this strategy will address the overwhelming demand for marine conservation outreach programs to citizens residing in both the urban and rural areas approximate to the MBNMS.

Activity 2.1: Provide Bilingual Outreach Programs in Partnership with Schools and Community Youth Programs

MBNMS will provide trainings and a marine conservation kit to Hispanic-serving schools and youth programs.

- A. Develop, pilot, implement and evaluate curriculum at the middle school level to increase marine and watershed education awareness in Hispanic-serving schools
- B. Develop, pilot, implement and evaluate curriculum for underrepresented youth enrolled in community programs to increase marine and watershed education awareness
- C. Involve industry representatives and community leaders in school program and youth leader trainings
- D. Expand programs to additional Hispanic-serving schools and communities, if deemed effective

Activity 2.2: Partner with Hispanic Event Organizers to Support Community Events

There are a number of rich and diverse community events that are offered annually by organizations and agencies serving Hispanics. This activity will increase marine and watershed education programs offered during Hispanic community events. MBNMS may also assist with providing bilingual tours, transport, event promotion, and other interpretive needs.

- A. Participate in events annually by providing an exhibit booth and marine and watershed education activities
- B. Work with event coordinators to involve media; post the event list on a community events calendar, and on the MERITO website to flag and promote upcoming events (See Strategy MERITO-5: Communication Plan).

Activity 2.3: Partner with Community Groups to Provide Outreach on Marine Conservation and Information on Coastal Sites

MBNMS will provide outreach and information to Hispanic-serving adult schools and community groups focused on marine ecology, marine policy issues, visiting coastal sites, and promote specific field opportunities to visit and get better acquainted with local sites.

- A. Provide a field-tested “lesson plan” to interested adult and community groups with the goal of developing an awareness and interest in visiting coastal sites. The “lesson plan” will be presented by a bilingual education specialist and include a Power Point

presentation focused on coastal water quality issues, an interactive watershed model demonstration, and a written evaluation.

- B. Promote and coordinate field trips to coastal sites on a regular basis, with support from community partners (see Activity 2.4).

Activity 2.4: Provide Field Experiences Actively Involving Hispanics with Nature

Based on survey data collected during migrant parent conferences, adults and families are interested in exploring nature through guided experiences. In addition, MBNMS will offer opportunities for business and community leaders to participate. MBNMS will work with community partners to provide a variety of field programs.

- A. MBNMS will develop and implement a variety of field experiences for Hispanic families, adults and youth to include bilingual outdoor tours (kayaking; whale watching; tidepooling) and walks (dune walks; birding hikes)
- B. MBNMS will develop and deliver in-nature program experiences incorporating learning and fun in the context of important “take-home” conservation messages

Activity 2.5: Develop and Produce a Variety of Bilingual Outreach Materials

MBNMS will develop bilingual outreach materials including, but not limited to, lesson plans for adults and schools, coloring books on storm drain pollution, books with stories of interest, newsletter articles, media products (Radio and TV PSAs) and other interpretive brochures and materials. Currently, a limited number of Spanish-language products are available within the NMSP. Bilingual materials will be distributed through the appropriate community-based programs.

Activity 2.6: Develop an Evaluation Plan for Community-Based Partnership

MBNMS will recruit a professional evaluation service to develop and deliver an evaluation plan for this strategy. The evaluation process will include correlating the measurable goals identified for each activity and comparing to their related short (1 year) and long-term (5 year) outcomes, in order to measure success/failure rate. MBNMS will evaluate this program on an annual basis, making revisions as needed to improve tracking for outreach methods and strategies.

Timeline: Years 1-5

Potential Partners: See Appendix A: *MBNMS Multicultural Education Plan Partnership Organizations*

Strategy MERITO-3: Site-Based Bilingual Outreach Program

Strategy Description

Encouraging visitation by Hispanic (and other culturally diverse groups) is a huge challenge for many natural resource sites, centers, and parks, across the nation. Many of these coastal sites fall under the jurisdiction of other governmental agencies, such as Elkhorn Slough National Estuarine Research Reserve (ESNERR) and California Department of Parks and Recreation (DPR). By collaborating with these agencies, MBNMS will increase the understanding of currently existing barriers for audiences in coastal use areas, and be more effective in reaching the Hispanic public.

Like the MBNMS, the Elkhorn Slough National Estuarine Research Reserve recognizes the need to reach their Hispanic constituents. ESNERR is a field trip site for school groups and hosts approximately 10,000 students annually. Even with diverse student visitation, it is apparent from demographic visitation surveys that students are not returning on the weekends with their families and that the Hispanic adult visitors are limited. ESNERR and MBNMS represent the only adjacent estuarine research reserve and national marine sanctuary in the nation.

California State Parks is also very interested in expanding their outreach to more diverse audiences. This strategy will address the need for ongoing demographic data on visitation to the above sites, as a way to measure any changes over time. It will also look at ways to increase awareness within the community about the sites, and build available program offerings at the sites.

Activity 3.1: Conduct Demographic Surveys at Sites; Compile & Analyze Data

Collecting baseline and ongoing visitation data on how local Hispanic communities interact with and utilize the Sanctuary and coastal access sites will allow us measure changes over time. In addition, such data will enable us to evaluate the effectiveness of the site-based outreach program.

- A. Compile existing demographic data from coastal visitation sites, identify gaps in the data and make recommendations on how to improve the survey data and methods
- B. Develop a formalized plan outlining the necessary survey tools and methods required to better understand how the Hispanic public utilizes coastal sites

Activity 3.2: Evaluate and Develop Methods for Increasing Visitation at Coastal Sites

After implementing and evaluating one year of Site-Based program, MBNMS and partners determined that year two efforts should focus on outreach in the community, and not be centered at the sites. For example, visitation to the Reserve by Hispanic families is extremely low; therefore, developing programs at the Reserve may not be an efficient use of resources. Instead, outreach programs on the Reserve will be offered through community venues such as adult schools and community centers. (Please see *Activities 2.3 and 2.4*). The community outreach programs are designed to build awareness, and encourage visitation through guided field trips to Reserve and Park sites. During community presentations, free passes to the Reserve are distributed along with promotional flyers for upcoming field experiences.

Based on demographic survey results indicating increased visitation by year three, MBNMS and partners, will consider developing and implementing ongoing bilingual programs at the sites. Relative to providing appropriate programming, research data suggests that environmental education groups often lack diversity in staff, and this remains an obstacle for both attracting diverse visitors and providing appropriate programming. In response to these findings, MBNMS and partner sites will actively recruit and train bilingual staff, docents and interns to implement programs.

Activity 3.3: Partner with Agencies to Identify, Develop and Produce Bilingual Materials

Once increased Hispanic visitation is established, and based on identified need, MBNMS will develop, or translate, Spanish-language outreach materials. A needs assessment will determine the best use of delivery for the intended messages and audiences. Materials may include, but are not limited to, lesson plans, trail guides, visitor center materials, fact sheets, and other interpretive brochures and materials.

Activity 3.4: Support Partner Agency Events

There are a number of annual community events offered by partner agencies. Events include Mother's Day and California Coastal Cleanup Day. MBNMS will provide support that encourages participation by the Hispanic community. The support can include bilingual tours, transport, activities, event promotion, and other interpretive needs.

Activity 3.5: Develop an Evaluation Plan for Site-Based Partnership

MBNMS will recruit a professional evaluation service to develop and deliver an evaluation plan for this strategy. The evaluation process will include correlating the measurable goals identified for each activity and comparing to their related short (1 year) and long-term (5 year) outcomes, in order to measure success/failure rate. MBNMS will evaluate this program on an annual basis, making revisions as needed to improve tracking for outreach methods and strategies.

Timeline: Years 1 through 5

Potential Partners: See Appendix A: MBNMS Multicultural Education Plan Partnership Organizations

Strategy MERITO-4: Hispanic Serving Institution Outreach Program

Strategy Description

This strategy addresses the need for increased professional development opportunities for Hispanic-serving teachers focused on marine science, and increased paid-internship opportunities for Hispanic undergraduate and graduate level students.

Activity 4.1: Provide Professional Development Opportunities for Hispanic-Serving Teachers

Our partners at the National Hispanic University (NHU) and California State University, Monterey Bay (CSUMB) have identified the need to provide effective professional development focused on marine science to pre-service and in-service teachers. In addition, they state that the large influx of new teachers flooding Central California schools need effective tools to teach science to diverse students. Based on that data, MBNMS will partner with appropriate groups to offer an annual Summer Teacher Institute. The five main objectives of the Summer Teacher Institute will be to:

- A. Provide K-12, Hispanic-serving teachers, with a foundation for issue-based marine science and teaching skills to educate their students about marine resource and conservation issues
- B. Train teachers on how to access resources from the network of regional marine related organizations, and develop peer support groups to strengthen ongoing use of curriculum
- C. Work with partners to develop, or utilize existing curriculum aligned with State and National standards, focused on marine-related management issues such as ecosystem monitoring or fisheries management
- D. Develop and implement a Teacher Institute evaluation plan
- E. Provide transportation, teacher stipends, printed curriculum, and ongoing program support

Activity 4.2: Provide Paid-Internship and Job Training Opportunities for Hispanic Undergraduate and Graduate Level Students

California State University Monterey Bay has identified the need to provide marine-focused internships to undergraduate and graduate level students, and has received funding from NOAA's Environmental Entrepreneurship Program/Minority Serving Institution (NOAA MSI) grant to support this goal. The MERITO Bilingual Outreach Internship is being implemented through this partnership for 2003 and 2004. MBNMS will continue work with CSUMB to recruit, train and mentor Hispanic interns to assist MBNMS staff with implementing MERITO, collecting survey data, and a variety of other tasks listed on the MBNMS website.

This strategy is contiguous with the NOAA MSI initiative by increasing opportunities and available programs for students in related professions to pursue research and educational programs in environmental science in partnership with MSIs. It is also in agreement with the new NOS Partnership Program initiatives.

Activity 4.3: Develop an Evaluation Plan for HSI Partnership

MBNMS will recruit a professional evaluation service to develop and deliver an evaluation plan for this strategy. The evaluation process will include correlating the measurable goals identified for each activity and comparing to their related short (1 year) and long-term (5 year) outcomes, in order to measure success/failure rate. MBNMS will evaluate this program on an annual basis, making revisions as needed to improve tracking for outreach methods and strategies.

Timeline: Years 2, 3, 4

Potential Partners: National Hispanic University; California State University, Monterey Bay

Strategy MERITO-5: Comprehensive Communications Plan

Strategy Description

Media is an effective outreach tool that will continue to be involved in all MERITO programs and projects. MBNMS will work with the NMSP West Coast Communication Team to effectively engage Spanish and other media groups, including print, radio, TV, and internet in delivering bilingual messages related to marine and coastal watershed protection.

Activity 5.1: Develop and Implement a Comprehensive Communications Plan

Timeline: On-going

Potential Partners:

Newspaper partners: The Californian and El Sol; The Register-Pajaronian;

Radio partners: KLOK – Entravision Communications, KSES – Tres Colores/La Estrella;

KHDC- Radio Bilingue: and Radio Campesina

Television partners: KSMS – TV 67 Univision.

Strategy MERITO-6: Integration of Multicultural Elements To Existing MBNMS Programs And Materials

Strategy Description

MBNMS will build multicultural elements into existing programs and materials for education, resource protection, and research, based on need identified in the 2005 MBNMS Management Plan. Potential elements include Spanish-language signage, visitor center copy, and new outreach materials. Costs for translation service, reprinting and production for existing outreach materials exist. Lastly, MERITO staff may need to provide bilingual services for outreach programs outside of education.

Activity 6.1: Integrate Multicultural Elements into Existing MBNMS Programs and Materials

Timeline: Years 2, 3, 4

Potential Partners: See Appendix A: *MBNMS Multicultural Education Plan Partnership Organizations*

Strategy MERITO-7: Intra-Sanctuary Expansion of MERITO

Strategy Description

NOAA's National Marine Sanctuary Program supports using the Monterey Bay National Marine Sanctuary's Multicultural Education Plan as a model multicultural marine conservation outreach and education program for other national marine sanctuaries across the nation. This strategy will focus on providing support to those sanctuaries interested in developing a multicultural education initiative.

Activity 7.1: Develop and Implement a Program to Expand MERITO to Other National Marine Sanctuaries

Timeline: Initiated in 2003; year 2, 3 & 4

Potential Partners: CINMS; GFNMS, CBNMS

Appendix A: MBNMS Multicultural Education Plan Partnership Organizations

MERITO outreach programs rely on partnerships with schools, non-profit organizations, government agencies, schools and academic institutions, and our local and national foundations to provide quality bilingual marine education experiences and materials that inspire understanding and stewardship. Key partners in the MERITO program include:

- ☐ Agricultural Land-Based training Association
- ☐ California Department of Parks and Recreation, Monterey District
- ☐ California State University, Monterey Bay – Earth System, Science & Policy Institute
- ☐ California State University’s Moss Landing Marine Laboratories
- ☐ Camp S.E.A. Lab Monterey Bay
- ☐ Channel Islands National Marine Sanctuary
- ☐ City of Salinas; City Hall
- ☐ City of Watsonville: Parks and Recreation & Neighborhood Services
- ☐ City of Watsonville: Public Works
- ☐ Elkhorn Slough National Estuarine Research Reserve (through the Dept. of Fish and Game)
- ☐ Monterey Bay Sanctuary Foundation
- ☐ Monterey Bay Aquarium
- ☐ Monterey County Office of Education – Migrant Education
- ☐ National Hispanic University
- ☐ National Marine Sanctuary Foundation
- ☐ Pajaro Valley Unified School District
- ☐ Resource Conservation District of Monterey County
- ☐ Save Our Shores
- ☐ Society of Advancement of Chicanos and Native Americans in Science
- ☐ University of California, Santa Cruz’s Mathematics, Engineering, Science, Achievement Program
- ☐ Watsonville Wetlands Watch